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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,326	01/26/2004	Nahum Izhaky	1296/82	6954

7590 09/28/2006

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EXAMINER

LEPISTO, RYAN A

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,326

Applicant(s)

IZHAKY ET AL.

Examiner

Ryan Lepisto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 13-21 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 is/are allowed.
- 6) ☒ Claim(s) 22-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22-26 are rejected under 35 U.S.C. 102(b) as being anticipated by **Wolf et al (US 5,526,453)** (Wolf). Wolf teaches a 3 dB adiabatic coupler (Fig. 1) comprising a pair of constant width, asymmetric waveguide branches (21 and 22, after regions T1 and T2, widths w_1 and w_2 , column 4 lines 1-5) having a curved section with variable curvature (column 4 lines 13-20) and are separated over a coupling length by a changing spacing (column 4 lines 6-12) to a blending symmetric intersection area (4) wherein two symmetric branches (23, 24) connect to the asymmetric branches (21, 22) (column 4 lines 25-44) and the transition sections are obtained using circular arc (therefore smooth) segments having a radius that are adjusted to adjust the spacing of the waveguides (column 4 lines 45-61) in a single direction.

Allowable Subject Matter

Claims 1-12 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 1: These claims are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious a 2x2 optical switch having two 3 dB adiabatic couplers with each having a pair a constant width, asymmetric waveguide branches with a variable curvature curved section and separated by a changing spacing that blend into a symmetric intersection area where two symmetric branches connect wherein the two couplers face each other along a propagation axis as mirror images and two identical arms connect the two pair of symmetric arms of the two couplers and have at least one active element coupled to one of the arms for dynamically changing on optical property of the arm so as the switch is practically polarization independent, has a low loss and very high extinction ratio over a broad band range, in combination with the rest of the claimed limitations.

With regard to claims 2-12: These claims are allowable over the prior art of record because they depend from a claim with allowable subject matter.

Response to Arguments

Applicant's arguments filed 19 September 2006 have been fully considered but they are not persuasive.

In response to the argument that applicant's bends are separate elements from applicant's two asymmetric waveguides and since Wolf teaches curved sections after regions T1 and T2 as part of the asymmetric waveguides and therefore Wolf does not teach the claimed invention: The claims reads, "a pair of constant width, asymmetric waveguide branches, each said branch having a curved section with a variable

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curvature.” The claim clearly states that the bends (curved section with variable curvature) are indeed part of the waveguides (each said branch *having* a curved section).

In response to the argument that Wolf does not teach curved sections with varying curvature: Wolf teaches a pair of constant width, asymmetric waveguide branches (21 and 22, after regions T1 and T2, widths w_1 and w_2 , column 4 lines 1-5) having a curved section with variable curvature (column 4 lines 13-20) and are separated over a coupling length by a changing spacing (column 4 lines 6-12), which reads on the claimed limitations of claim 22. The waveguide branches (21, 22) curve in towards an interaction region (4) at an angle (Φ) with additional compact spacing being accomplished by using S-shape curves (column 4 lines 13-20) resulting in a variable curvature since an S-shape has variable curvature.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

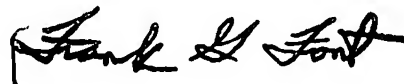
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-Th 7:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ryan Lepisto
Art Unit 2883
Date: 9/25/06



Frank Font
Supervisory Patent Examiner
Technology Center 2800